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Windows Vista comes into view

After a five-year wait and numerous delays, Microsoft is finally set to deliver a new version of Windows to consumers on 30th January 2007. Copies of Vista have been available to business customers since 30th November and some retailers are already offering vouchers for free upgrades to Vista with new PCs.

Vista's chief selling points are its slick new Aero interface, improved search features, greater stability and much improved security.

However, Microsoft still faces problems with its new operating system, including potential legal actions from rivals such as Adobe, as well as the European Commission, over some of Vista's features. On top of that, the company must persuade Windows XP users to upgrade to an operating system that has demanding hardware requirements but lacks some of the useful abilities it promised. Vista has been stripped of many of its planned new features, such as a new file system, in order to meet the launch deadline.

Widespread reports of numerous bugs during the final phases of beta testing are also likely to make many prospective customers defer their upgrade until Microsoft addresses any teething problems with the first release.

One of the biggest complaints about Vista is the way Microsoft has hiked up the price it demands for its software, an increase that is in stark contrast with the decade-long fall in hardware prices. The retail price for Windows Vista Home Basic is £155, which is less than the Home Edition of Windows XP. However, this version is stripped of features such as Aero and Media Center, which are just the kind of things most consumers want in their PCs. To get these features, customers will have to shell out £190 for the Premium version of Vista.

For businesses, Windows Vista Business costs £250 compared with the £235 typically charged for its predecessor, Windows XP Professional. This price hike of six per cent is not the end of the story. There's also a high-end Windows Vista Premium that includes all the home and business features, which will cost a whopping £325. Buyers will also have to allow for hardware upgrades so their PC can run Vista. You will need at least 1GB of RAM installed.

According to Jim Wong, Acer's senior corporate vice president, Microsoft is also raising the prices it charges hardware vendors to pre-install Windows by up to 10 per cent. Whether vendors will pass down this price increase to customers remains to be seen. Some analysts have suggested that Microsoft risks losing market share to Mac OS X and Linux as customers look at the costs and benefits of buying a new computer to run Windows Vista.



▲ Windows Vista: it's finally here, but is it any good, and is it worth its hefty price? Find out in our in-depth review next month

WMP 11 out of tune with Zune

Microsoft has released a new version of Windows Media Player. Windows Media Player 11 is a free download that Microsoft claims offers new, faster search features, an improved interface, seamless integration with MTV's Urge music download service and greater compatibility with a wider range of devices. Bizarrely, this range doesn't include Microsoft's own Zune player.

"Windows Media Player 11 is the first media player to be truly designed with the digital entertainment lover in mind," said Mike Sievert, corporate VP of Windows at Microsoft. "The fresh, exciting new look, the ability to find songs and videos in an instant and the enhanced capabilities for syncing with portable devices are not only exactly what customers

have asked us for, they're also a preview of what's to come in Windows Vista."

In fact, not every "digital entertainment lover" will be well served by WMP 11. There is no version available for Mac and Linux users and, perhaps more strangely, Zune owners. Microsoft confirmed that WMP 11 does not recognise its Zune music player, and nor does it interoperate with the Zune Marketplace, Microsoft's equivalent of iTunes.

Instead, WMP 11 features tight integration with MTV's Urge, which offers a catalogue of around two million songs, available either as downloads or on a subscription basis. However, Urge is available only in the US so far.

Early reviews have praised the improvement in WMP 11's

interface, which looks rather similar to Apple's iTunes, down to its brushed-metal interface and a CD jukebox-style view of songs grouped by album art.

WMP 11 also introduces new audio-fingerprinting technology that Microsoft says can automatically identify unnamed tracks and import information such as the title, artist and album.

Microsoft claims that WMP 11 provides more seamless integration with a wider range of third-party music players. Earlier versions of its media software have been lacking in this area.

The free download requires a PC running Windows XP SP2 or Windows Vista, and Microsoft recommends a computer equipped with at least a 1.5GHz processor and 512MB of RAM.

MySpace faces Universal threat

The days of embellishing your MySpace page with your favourite songs for free may soon be over. Universal Music says it is taking legal action against the social-networking site because of what it sees as "rampant" copyright violation.

Universal has claimed that MySpace is a "vast virtual warehouse [of] pirate" material and that no copyrighted material is immune from unlawful copying. The company is demanding \$150,000 (around £77,000) in compensation for every instance of copyrighted material being posted on MySpace without its permission.

However, Universal said it did not intend to take legal action against any of the estimated 115 million individuals who may have posted copyrighted songs on their MySpace pages. Universal is particularly peeved because it claims that MySpace is making money by placing advertisements on MySpace pages alongside copyrighted Universal music.

"Businesses that seek to trade off our content, and the hard work of our artists and songwriters, shouldn't be free to do so without permission and without fairly compensating the content creators. Our music and videos play a key role in building the communities that have created hundreds of millions of dollars of value for the owners of MySpace," said Universal in a statement.

MySpace denounced the suit as "unnecessary and meritless" and denied that it had ever encouraged its members to upload copyrighted content. The company believes it is protected by the US Digital Millennium Copyright Act, which says that if a site such as MySpace removes offending content when requested by rights holders, it can't be sued.

However, the fact that MySpace makes money from advertising on pages with copyrighted material could make it vulnerable to Universal's suit.

Worried about further litigation of this kind, MySpace announced that it will use an audio-fingerprinting and content-filtering system, developed by Gracenote, to remove copyrighted songs that have been posted on its site without the owner's permission.

The threat of legal action from copyright holders is also worrying Google, which recently bought YouTube, another site that carries vast quantities of copyrighted material. The company has already signed agreements with music giants Sony BMG, Warner and Universal, compensating them for carrying their material on the video-sharing site. However, Google revealed that it has put \$200 million (around £100m) into a reserve fund to fight other possible legal actions from content owners.



▲ Universal's legal action could have repercussions for acts such as Lily Allen, who found fame on MySpace

EC blocks cheap booze on the web

Hopes that UK citizens would soon be permitted to buy cheap alcohol and cigarettes online from anywhere in the EU, free of excise duty, were dashed by the European Court of Justice.

The court ruled that any such purchases are liable to the same taxes and duties that traditional importers have to pay. The decision means that an expected boom for internet retailers, who were gearing up to sell cheap alcohol and cigarettes, will not materialise.

It is legal for UK citizens to bring back huge quantities of alcohol, provided they can prove that it is for personal consumption. So-called booze cruises are so popular that according to estimates they cost the UK government up to £3 billion per year in lost revenue.

The Court said there was no way of regulating online trade in drink and tobacco to ensure all orders were for personal use. The judges also ruled that under EU law it was illegal to import "products acquired by a private individual for the use of other private individuals. Were this not so, the effect, for the competent authorities of the Member States, would be an increased risk of fraud as the transport of products covered by the exemption requires no documentation."

Microsoft delays UK Zune launch

Just days before launching its Zune music player in the US in time for the Christmas market, Microsoft announced that it will not appear in the UK for at least a year.

According to the company's media and entertainment alliance manager, Dene Schonknecht, the earliest that Microsoft's latest attempt at an 'iPod killer' will ship in the UK will be "towards the end of 2007. However, it could easily be 2008."

Early reviews suggest that we won't be missing much. In contrast to the simple 79p payment for every song download at the iTunes store, Microsoft requires US customers to purchase 'Microsoft points', which they exchange for music downloads.

The built-in WiFi, which Microsoft claims will reduce the Zune's 14-hour battery life by only 10 per cent, is the device's biggest selling point. But songs beamed to your player by a fellow Zune user have a three-play, three-day limit before they are disabled. This DRM restriction applies even to non-copyrighted material, because Microsoft says it has no way of telling the difference between copyrighted and non-copyrighted songs.

While the Zune's 3" screen is larger than that of the video iPod, both have the same resolution. As no video downloads are available for the Zune (or even video or audio podcasts), screen size is even less of an issue.

The tortuous process involved in setting up a Zune Marketplace account, which is the equivalent of an Apple iTunes account, on a PC has also been widely criticised in product reviews and ridiculed in the US popular media. "It has all the features of the iPod, only it's not as good, and it's five years too late," declared Craig Ferguson on *The Late Late Show* on CBS.

Even more embarrassing was the revelation that the Zune's music player software is incompatible with Vista, although Microsoft said it should be compatible by the time Vista ships.

IN BRIEF

MP3 TRANSMITTER STANDARD SET

Ofcom has formally announced that low-power FM transmitters, which connect portable music players to in-car audio systems, are now legal. The handy gadgets became legitimate on 8th December 2006.

The regulator notes that while equipment that was previously available carried a high risk of interference with other broadcast services, new devices are designed to limit the potential of interference to other wireless devices. FM transmitters that meet the new specifications will therefore be legal to use in the UK and will carry a CE mark indicating approval for sale in the EU.

The new regulations also remove the requirement for 20,000 Citizens' Band radio users to buy a licence, and make more of the spectrum available to meet demand for other low-power devices such as hearing aids, alarm systems, tracking and tracing systems and meter-reading devices operating in the 169.4MHz-to-169.8125MHz band.

NOTEBOOK THEFT HITS MET POLICE STAFF

Thieves stole three notebooks containing details of the Metropolitan Police payroll, Scotland Yard has confirmed.

They were stolen in mid-November 2006 from the offices of LogicaCMG, the company responsible for the Met's pay and pension services. The computers contained the pay details of half the Met's entire staff.

According to reports, one man has already been arrested in Southwark. He was later bailed in connection with the burglary. A spokesman for the Met said the risk of staff becoming victims of identity theft was "minimal". The spokesman added that the Met was in discussions with credit reference agencies, the payments association APACS and the fraud prevention service CIFAS to take action to protect staff from identity theft.

129 SUSPECTED PHISHERS REELED IN

Microsoft has brought 129 lawsuits against suspected phishing gangs in Europe and the Middle East. Action has already led to the imprisonment of one criminal in Turkey for two-and-a-half years, with four teenagers settling out of court.

IN BRIEF

» MP3 PLAYER STEALS FROM CASH MACHINES

A Manchester man has been convicted of fraud after he used an MP3 player to download bank card details from a cash machine. Maxwell Parsons, 41, plugged the unspecified player into the back of free-standing machines and recorded information as it was sent over phone lines to the bank. He used the copied data to produce cloned cards.

Parsons, who stole £200,000, was sentenced to 32 months in prison. Police discovered the scam after they stopped Parsons for making an illegal u-turn while driving in London.

Police have stressed that the fraud took place before the introduction of chip-and-pin security measures. "The method used by Parsons was sophisticated, but the banking industry and ATM owners have now taken action to prevent this happening in the future," said Detective Inspector Alan Shepherd of Greater Manchester Police Economic Crime Unit.

» MOST PROLIFIC SPAMMERS NAMED

Just 10 people account for 80 per cent of the world's spam, according to the organisation Spamhaus. Half the perpetrators are from Eastern Europe.

According to Spamhaus, Ukrainian Alex Polyakov (aka Alex Blood/Alexander Mosh/AlekseyB) is at the top of the pile. Polyakov is alleged to work with a Russian spam gang called Pavka/Artofit, which controls a large amount of botnets that churn out spam.

Second on the list of shame is Russian Leo Kuvayev (aka BadCow). Kuvayev is alleged to be "involved in pirated software spam, child and animal porn spam, porn payment collection, pharma/pills and phishing", among other things. Spamhaus claims that the Russian is "noted for enormous numbers of domains, often rotating every three hours in the spam to avoid [internet] filters".

Number three, and one of only two Americans in the top 10, is Michael Lindsay of iMedia Networks. He is thought to run a spam-hosting service and promises "to keep the 'fools at the networks' off the spammer's backs by acting as a go-between".

Spamhaus also lists the top 10 worst countries for spam. The US is top, with China, Japan and Russia following.

Speculation grows over Apple iPhone

Apple is to launch an iPod phone, or 'iPhone', according to industry insiders, some of whom believe it could radically shake up the mobile phone handset business. Reports in two Taiwanese newspapers claim that Apple has ordered 12 million iPhones from Taiwanese electronics giant Foxconn. Foxconn already assembles iPods for Apple and also operates the world's largest mobile phone-assembly business.

Both Apple and Foxconn, which recently announced a new \$1.2 billion (around £616m) assembly plant in northern China, declined to comment on a story about the deal, which was published by Taiwan's *Commercial Times*. A week earlier, the *China Times* ran a story that claimed Foxconn would begin manufacturing iPhones in February and that the iPhone will include a two-megapixel digital camera.

"This is in line with our expectations that a cell phone could be discussed in January at Macworld, with limited sales by February and broader distribution in spring 2007," said UBS analyst Benjamin Reitzes.

The *Commercial Times* story also convinced financial analysts at Bear Stearns. In a report to clients, Andy Neff predicted that Apple could sell 29 million iPhones during the whole of 2007, giving it a three per cent share of the world's mobile phone market. He also predicted that the iPhone would be priced at about \$300 (around £154).

Another analyst report, by industry analysts BNP Paribas, was more cautious. It predicted that Apple would ship only between five and six million iPhones. Significantly, it included a detailed overview of which companies would supply exactly which iPhone components.

According to other analysts, Apple will offer two iPhone models. One will be a 3G smartphone with web access and video playback and features a BlackBerry-style keyboard. The other will be a cheaper combination of a GSM phone and an iPod.

Apple was recently granted a patent that described a revolutionary multifunction device, controlled by a context-sensitive touch screen that alternates between phone, music player and camera interfaces. But Nick Holland, an analyst at Pyramid Research, said the first-generation iPhone is unlikely to use such technology. Instead, he predicted that Apple would use a more tried-and-tested approach and would focus on keeping the iPhone simple to operate by releasing a low-end "dual function" handset – an iPod that can make calls – while a more expensive model would also have internet access.



▲ Industry insiders think the iPhone will ship in the new year

Copy Office, says Microsoft

Microsoft has announced that it will license the look and feel of Office free of charge to any third-party developer that wants to incorporate it in their applications, even if they're running on Linux or Mac OS X.

The company has attracted plaudits for the brand new Office 2007 interface, which it released on 30th November 2006. "One of the most compelling reasons to move to Office 2007 is the new simplified user interface, something called the Ribbon. It lets you get at far more of the power of the product," reported Chris Capossela, corporate vice-president of the Microsoft Business Division.

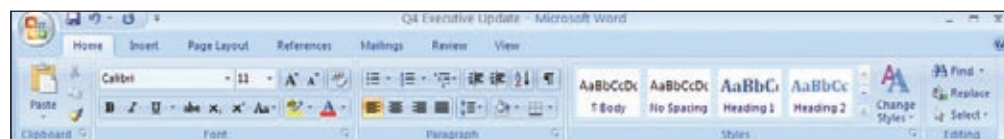
"The Ribbon replaces the current system of layered menus, toolbars and task panes with a simpler system of interfaces optimised for efficiency and discoverability," he said.

Microsoft's decision has raised some eyebrows, especially as its Office franchise is one of the company's main profit centres. There are an estimated 400 million Office users around the world. However, Office's dominance of the productivity market is increasingly being challenged by free alternatives such as OpenOffice.org, which has amassed an estimated 40 million users, and even from Google, which recently launched web-

based word processor and spreadsheet applications.

Controlling an industry standard such as Windows has been a big factor in Microsoft's success, and making Office's user interface an industry-wide standard could help the company, too. If people are used to the Office look and feel, they are more likely to stick with Office. Significantly, there is an important exemption to Microsoft's offer: no company developing a product that competes directly with any of Office's components is allowed to use the Office 2007 interface.

Oddly, the Outlook 2007 component of Office 2007 does not have the new look and feel.



▲ Microsoft Office's new interface, known as the Ribbon, will be licensed to interested parties

Bloggers freed from libel suits

In a groundbreaking decision that is certain to influence US and UK law, the California Supreme Court has ruled that anyone who posts defamatory statements on their website or blog is not liable to prosecution, as long as they repeated rather than originated the assertion.

The ruling is likely to be contentious, despite the traditionally unrestrictive approach the US takes to libel and slander law, in deference to free speech protections enshrined in the First Amendment of the US Constitution. "We acknowledge that recognising broad immunity for defamatory republication on the internet has some troubling consequences," concluded the California high court justices.



▲ UK Law Lords have made a ruling that could affect libel cases

"[But] until Congress chooses to revise the settled law in this area, plaintiffs who contend they were defamed in an internet posting may only seek recovery from the original source of the statement," they wrote.

The ruling extends earlier US judgments, which found that ISPs were not responsible for content posted on sites they operated on the grounds that they were more akin to telephone companies than traditional media outlets such as newspapers.

By contrast, the UK's defamation laws are draconian for defendants. If someone is quoted making a libellous statement in a magazine, not only are they liable to prosecution, but the publication, the

distributor and even the outlet selling the publication could be sued. This precedent has carried over to the web where not only can an originator of a defamatory statement be sued, but also the website operator and anyone repeating the allegation. Even an ISP could potentially be liable.

However, there are signs that the UK judiciary is already beginning to follow the US approach to media matters. For example, in October in a case involving the *Wall Street Journal Europe*, UK Law Lords ruled that UK journalists can publish "responsible" articles that are in the "public interest" free from the threat of libel damages, even if their assertions are later proved to be untrue. The ruling marked a strong move towards the US approach on defamation law, which is likely to carry over into internet legislation in the UK.

Firm develops miracle cooling chip

A small technology start-up claims to have developed technology that will make overheating notebooks a thing of the past, while also extending their battery life. Several PC manufacturers are in talks with a small US company called Eneco, which claims it has developed a chip that converts heat into electrical current.

Speaking at a meeting in London in front of prospective investors, Eneco CEO Lew Brown said that his company had developed a chip capable of generating up to 20 amps of electrical current that is small enough to fit on the motherboard of a portable computer. The Eneco chip converts heat into electricity with an efficiency of up to 30 per cent.

"It will suit any portable device and is also very scalable and long-lived as there are no moving parts," he said. Brown claimed that Eneco had already held preliminary discussions with both Apple and Dell to incorporate the technology into their notebooks. The Eneco chip could, he said, convert heat generated by notebook processors into current to power a cooling fan, for example. "We're not there yet [with Dell and Apple] on where [the chip will] sit on the motherboard, though it is so small it could be incorporated as part of the processor," he added.

This arrangement would improve battery life and processing performance, as processors run better at cooler temperatures, said Brown. Eneco's chip can also be used as a cooling device. When power is sent to the chip, it can reach temperatures as low as minus 200° centigrade.

Brown suggested that Eneco's chip could even form part of an alternative to replace today's lithium-ion battery technology, which has been dogged by problems with overheating. According to Brown, an ethanol-based heat source could generate electrical power using his company's technology. Another advantage would be the end of slow battery charge-up times. "When the ethanol burner runs out you can instantly replace it by putting in a new fuel cassette," said Brown.

Open source gets Flash

Adobe has donated the source code for part of its Flash player to the Mozilla foundation to help develop it as an open-source project. The unusual move is designed to increase the uptake of Flash, which the company claims is already installed on 700 million personal computers and mobile phones. It will also enable anyone to build Flash video playback capability into all kinds of new applications and web services.

The 135,000 lines of Flash code are the biggest ever donation to the Mozilla foundation, which is best known for developing the Firefox browser. The code is the web-programming language used to create the core engine inside the Flash player.

"The contribution by Adobe brings together the HTML and Flash development communities around a common language," said Mozilla executive director Frank Hecker. "As a result, we are encouraging innovation in web applications and more interactive web experiences."

Kevin Lynch, Adobe's chief software architect, said: "By working with the open-source community we are accelerating the adoption of a standard language for creating and delivering richer, more interactive experiences that work consistently across PCs and mobile devices."

But Lynch made it clear that Adobe is not making the Flash player open source. "We just open-sourced the ActionScript Virtual Machine [AVM] in Flash, which is the biggest open-source step so far at Adobe," he told Mozilla developers in an online discussion. "I am sure we will learn a lot from this and then we'll see what might make sense next."

Staff from both Adobe and Mozilla will oversee the open-source AVM, which has been named the Tamarin project. Improvements in Flash player features and performance are expected, and Flash playback will be embedded directly into Firefox.

IN BRIEF

MP3 BOOM FOR HEARING AID MAKER

A Swiss hearing aid maker expects strong sales growth as an increasing number of young people damage their hearing. Phonak said that MP3 players and listening to music at high volumes will create a significant new market.

"Due to the noise exposure, especially among the young, we are witnessing the creation of a hearing loss bubble in years to come," CEO Valentin Chapero said.

Apple, the leading maker of portable players, has updated its players to let users set a lower maximum volume setting on their iPods, while recent research indicates that the type of headphones used can have a significant impact on potential hearing damage.

DATING SITE HACKER FACES PRISON

A British computer hacker has been found guilty of gaining unauthorised access to user profiles on a dating site and has been given an eight-month jail term, suspended for two years.

Matthew Byrne used a dictionary attack to guess the passwords to member profiles on the loveandfriends dating site, which he subsequently defaced.

Following the defacement, a police investigation by the Computer Crime Unit identified, located and arrested Byrne, who admitted his part in the offence. A forensic search of Byrne's computer revealed that he had also written the MIRS mass-mailing email worm.

Byrne pleaded guilty under section 3 of the Computer Misuse Act regarding "unauthorised modification of computer material". The offence has a maximum five-year jail sentence.

NO EXTENSION OF SOUND-RECORDING COPYRIGHT

A UK government enquiry will recommend that copyright on sound recordings is not extended beyond the current 50 years' protection. According to the BBC, The Gowers Review of Intellectual Property will "reject calls from record companies and some artists for copyright to last 95 years". If the government agrees, early recordings by Cliff Richard, a prominent campaigner for extending protection, will be in the public domain in 2008.

IN BRIEF

» WIRELESS ELECTRICITY SPELLS END FOR CABLES

Notebook users may soon be able to abandon their power cables for good after a discovery by researchers at the Massachusetts Institute of Technology (MIT).

Marin Soljacic, an assistant professor in MIT's Department of Physics and Research Laboratory of Electronics, realised that by transmitting power through a "non-radiative" electromagnetic field, rather than by electromagnetic waves, it would be possible to transfer energy over longer distances, such as across a room. Only those devices designed to resonate would be able to receive that energy, and the emitter would reabsorb any energy not picked up.

The team has calculated that an object the size of a notebook could be recharged within a few metres of a power source. Placing one source in each room could provide coverage throughout a home. Soljacic is looking forward to a future where notebooks and cell phones may never need any wires at all, while wireless electricity could also power other household gadgets.

» BT REJECTS FIBRE-TO-THE-HOME

BT has no plans to introduce a new type of ultra-fast internet connection to UK homes. Rejecting fibre-to-the-home (FTTH), the company insists that its 21CN project will provide enough bandwidth for UK consumers' requirements.

Paul Reynolds, CEO of BT Wholesale, told the DigiWorld 2006 Summit in Montpellier, France, that he does not believe there is a business case for connecting homes with high-speed optical fibre technology.

"We'll launch ADSL2+ next year, which gives speeds of up to 24Mbit/s and will comfortably support customers' immediate needs, including IPTV," he said.

However, that does not necessarily mean that FTTH is off the UK broadband agenda. If they choose, LLU operators can unbundle the local loop at street level as well as at the exchange, and could use FTTH rather than copper wires to do this.

At press time BT was about to turn on the first phase of 21CN, its new IP-based network that will debut in Cardiff. Nationwide coverage is expected in 2011.

Virtual realities spread social diseases

When the virtual residents of the online game Second Life saw hundreds of golden rings descend from the skies and embed themselves into objects and the ground, some enjoyed the wondrous spectacle. After all, this kind of thing never happens in the real world.

However, what the 'residents' of Second Life, otherwise known as avatars, had witnessed was a massive viral attack of self-replicating objects. This put a huge strain on the Second Life servers, forcing Second Life to close for 11 minutes.

"We are investigating reports of failed teleports, faulty L\$ (Linden dollars, the currency of Second Life) balances and clothing not appearing," said the game's developer, Linden Labs, in a statement. The fact that Linden dollars can be exchanged for real US dollars – and that there are over one million people playing, some of whom make their real-life living from Second Life – meant the attack had real-world consequences. Linden contacted the FBI.

This was the third viral attack on Second Life in just two months. In September the online role-playing game World of Warcraft suffered an epidemic of a deadly digital virus that 'killed' huge numbers of gamers' characters after anti-social players introduced malicious code. "There are three things you can do: infect people, die, and watch other people do the first two," wrote one player in the World of Warcraft forum.

The phenomenon is not confined to virtual worlds. Experts expect it to become a growing menace to all social-networking systems, which are inherently



▲ A screenshot, taken by a Second Life gamer and posted online, depicting the recent attack on the game

susceptible to the rapid spread of malware by virtue of their very interconnectedness and growing popularity.

The world's most popular social-networking site, MySpace, has suffered malware attacks. One of the most notable was a worm called Samy. Using a combination of JavaScript and AJAX, it automatically amassed over a million friends, bypassed the approval process and extracted their email addresses, which could be sold to spammers.

As operating systems and other traditional malware targets become more secure in response to attacks, so the focus of attacks is changing, with social networks becoming a prime target. "[You] don't need to hack the OS any more. Everything you need to attack is online," said Jeremiah Grossman, founder and chief technology officer for WhiteHat Security.

Adobe focuses on perfect picture

Imagine a digital camera that never shoots out-of-focus pictures and can even warn you when someone in a group photo has their eyes closed.

According to Adobe, its researchers are working on precisely these technologies, which could find their way to market within the next couple of years. Adobe says it has no intention of entering the camera market but is interested in licensing the technology to camera makers.

Adobe says it is working on lens technology to replace the single primary lens found in today's cameras. Adobe's approach is to create a collection of lenses arrayed together, rather like a fly's eye, and capable of focusing on multiple points of the scene being captured. The result is that each time you take a snap, you capture several backup images, which presumably could be encapsulated into a single file format.

When you open the image in Photoshop, you can replace areas that are out of focus with the same area from one of the backup images.

The company is also working on image-recognition technology that can distinguish between people's faces and objects.

According to Adobe, it has technology that can automatically flag problem faces, such as people who have their eyes shut in group shots, and also provide instant zoom views of each face in the group picture for photographers to check manually using their camera's display.

Super-fast internet coming soon

A major technological breakthrough that will enable today's internet infrastructure to work with bandwidth-intensive applications such as HD TV-on-demand has been announced by a group of tech companies and academics.

Scientists from Finisar, Infinera, Internet2, Level 3 Communications and the University of California transmitted a 100-gigabit signal thousands of miles between Florida and Texas and back. It was the first time a 100Gbit/s Ethernet signal (100GbE) has been transmitted over the internet's fibre-optic backbone.

The transmission was made possible by a technology called dense wavelength division multiplexing (DWDM), which enables data from various sources to be carried simultaneously on the same piece of optical fibre. The scientists achieved the 100Gbit/s data transfer by mixing together 10 10Gbit/s channels of data simultaneously.

"This successful demonstration shows that this concept of 100GbE over 10x10 Gbit/s DWDM works and provides a near-future implementation path," reported Dr Daryl Inness, vice-president of Ovum-RHK's Communication Components research.

Infinera cofounder Drew Perkins added, "100 Gigabit Ethernet will be a critical technology to accommodate bandwidth growth, and this demonstration shows that we have the capability to implement this over today's networks".

The advance could help services such as the provision of HD TV over the internet become a reality. More than 60 uncompressed HD TV video applications can operate simultaneously on a single 100GbE interface.